GENERAL NOTES

1. THIS PARCEL IS IDENTIFIED AS PIN NUMBERS: 191-16-9866
   THIS PROPERTY IS RECORDED IN DEED BOOK 1443 PAGE 940.
2. THE SITE AREA IS APPROXIMATELY 87.93 ± ACRES.
3. THE PROPERTY IS CURRENTLY ZONED JLMA-2 SUBJECT TO REVISED 1993 LOUDOUN COUNTY ZONING ORDINANCE SUBJECT TO 2-1100.
4. BOUNDARY INFORMATION FROM PLAT PREPARED BY LOUDOUN COUNTY.
5. THE TOPOGRAPHIC CONTOUR INTERVAL IS TWO (2) FEET.
6. THE CONTRACTOR SHALL CLEAR THE SITE OF ALL TREES, BUILDINGS, FOUNDATIONS, EXISTING WATER LINE TO BE ABANDONED, ETC. WITHIN THE LIMITS OF CLEARING AND GRADING AND SHALL BE RESPONSIBLE FOR COORDINATING AND DISCONNECTION OF EXISTING UTILITIES.
7. ALL CONSTRUCTION MATERIALS SHALL CONFORM TO LOUDOUN COUNTY AND VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS EXCEPT AS ALTERED BY NOTES AND DETAILS HEREON.
8. THE PROPERTY LIES SOLELY WITHIN LOUDOUN COUNTY, VIRGINIA AND IS NOT GOVERNED BY ANY OTHER ORDINANCE.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OWNER AND THE ENGINEER OF ANY CHANGES OR CONDITIONS ATTACHED TO PERMITS OBTAINED.
10. WILLIAM H. GORDON ASSOCIATES, INC. DOES NOT CERTIFY TO THE LOCATION OF OR THE EXISTENCE OF ANY UNDERGROUND UTILITIES. THE UNDERGROUND UTILITIES SHOWN ARE FROM AVAILABLE RECORDS. THIS DOES NOT CONSTITUTE GUARANTEE OF THEIR ACTUAL LOCATION OR THAT THEY HAVE ALL BEEN SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DIGGING OF TEST HOLES PRIOR TO BEGINNING ANY CONSTRUCTION. THESE TEST HOLES WILL BE MADE TO VERIFY ALL EXISTING CONDITIONS. IF CONDITIONS ARE FOUND IN THE FIELD WHICH ARE MATERIALLY DIFFERENT FROM THE PLANS, THE CONTRACTOR SHALL NOTIFY WILLIAM H. GORDON ASSOCIATES, INC. SO THE APPROPRIATE REVISIONS CAN BE MADE TO THE PLANS.
11. CONTRACTOR SHALL NOTIFY OPERATORS WHO MAINTAIN EXISTING UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION AT LEAST TWO (2) WORKING DAYS, BUT NOT MORE THAN TEN (10) WORKING DAYS, PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION. CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 1-800-257-7777 PRIOR TO COMMENCEMENT OF ANY EXCAVATION.

UTILITY CONTACT NUMBER
(PARTIAL LIST)

UTILITY	UTILITY PROVIDER	TELEPHONE NUMBER
WATER:	TOWN OF LEESBURG UTILITY DEPARTMENT	(703) 771-2750
SANITARY SEWER:	TOWN OF LEESBURG UTILITY DEPARTMENT	(703) 771-2750
STORM SEWER:	TOWN OF LEESBURG UTILITY DEPARTMENT	(703) 771-2750
GAS:	WASHINGTON GAS COLUMBIA GAS TRANS CORP. CNG TRANS. CORP.	(703) 750-9500 (703) 759-2115 (412) 527-1531
ELECTRIC:	VIRGINIA POWER NOVEC	(703) 547-1291 (703) 777-2041
TELEPHONE:	BELL ATLANTIC VERIZON	(703) 437-8800 (703) 730-5310
CABLE:	ADELPHIA CABLE	(703) 478-1825

12. SEDIMENT AND EROSION CONTROL MEASURES, TO BE INSTALLED DURING CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE LATEST VERSION OF THE VIRGINIA HANDBOOK, AND AS REQUIRED BY THE COUNTY OF LOUDOUN.
13. THE APPROVAL OF THESE PLANS SHALL IN NO WAY RELIEVE THE OWNER OF COMPLYING WITH OTHER APPLICABLE LOCAL, STATE AND FEDERAL REQUIREMENTS.
14. ALL LAND ON OR OFF-SITE WHICH IS DISTURBED BY CONSTRUCTION AND WHICH IS NOT BUILT UPON OR SURFACED SHALL BE ADEQUATELY STABILIZED TO CONTROL EROSION AND SEDIMENTATION.
15. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF CLEANING TRUCKS AND/OR EQUIPMENT OF MUD PRIOR TO LEAVING THE SITE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN STREETS OF MUD AND/OR ALL LAYING DUST OR TAKE WHATEVER MEASURES NECESSARY TO ENSURE THAT THE STREETS ARE KEPT IN A CLEAN AND DUST-FREE CONDITION AT ALL TIMES.
16. THE CONTRACTOR SHALL VISIT THE SITE AND SHALL VERIFY EXISTING CONDITIONS PRIOR TO STARTING CONSTRUCTION.
17. UNLESS OTHERWISE NOTED, ALL PROPOSED ELEVATIONS AS SHOWN HEREON ARE FINISHED GRADE.
18. CONTROLLED FILLS: (FILL MATERIAL TO BE APPROVED BY GEOTECHNICAL FINISHED GRADE. ENGINEER PRIOR TO ITS USE ON SITE.)
    A) CONTROLLED COMPACTION SHALL OCCUR IN ALL FILL SECTIONS FOR PAVEMENT, TRENCHES FOR UTILITIES, AND IN ANY AREA DESIGNATED ON THE DRAWINGS.
    B) CONTROLLED FILLS SHALL BE COMPACTED TO 95% OF THE LABORATORY MAXIMUM DRY DENSITY AND WITHIN +/- 2.0% OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY METHODS AS PER STANDARD PROCTOR AASHTO-T99 OR ASTM D698 AND/OR AS OTHERWISE REQUIRED BY THE MOST RECENT VDOT ROAD AND BRIDGE SPECIFICATIONS. DENSITY MUST BE VERIFIED BY A QUALIFIED SOILS ENGINEER.
    C) CONTROLLED FILLS SHALL BE COMPACTED IN EIGHT (8) INCH LIFTS (LOOSE THICKNESS) TO THE SPECIFIED DENSITY, BEGINNING FROM THE EXISTING GROUND SURFACE, UNLESS OTHERWISE APPROVED IN WRITING BY A QUALIFIED SOILS ENGINEER.
    D) THE SURFACE AREA DIRECTLY BENEATH AREAS TO RECEIVE CONTROLLED FILLS OF LESS THAN FIVE (5) FEET IS TO BE DENUDED OF ALL VEGETATION AND SCARIFIED AND COMPACTED TO A DEPTH OF SIX (6) INCHES TO THE SAME DENSITY AS THE CONTROLLED FILL TO BE PLACED THEREIN.
19. MAINTAIN A MINIMUM VERTICAL CLEARANCE OF (1' - 6") BETWEEN CROSSING OF WATER AND SANITARY SEWER LINES AND ALL OTHER UTILITY LINES UNLESS OTHERWISE NOTED.
20. THE SUBJECT DEVELOPMENT SITE DOES CONTAIN CLASS III AND CLASS IV SOILS, PER THE LATEST COUNTY SOILS MAP AND AS IDENTIFIED BY THE INTERPRETIVE GUIDE TO SOILS MAP, LOUDOUN COUNTY, VIRGINIA.
21. THE FOLLOWING LAND APPLICATIONS ARE ASSOCIATED WITH THIS SITE PLAN: SPAM 2000-0019, SPAM 1998-0034, SPFI 1994-0005, SPPF 1990-0002, SPPF 1990-0011, SPPF 1993-0010, SPPL 1992-0009, SPPL 1993-0016 STPL 1995-0007, STPL 1995-0015, STPL 1997-0012, STPL 2001-0034, STPL 2002-0037, PSUB 2002-0051, SPAM 2002-0070, SPEX 1986-0014, AND STPL 2002-0037 IS ACTIVE.
22. CONTACT STAN HEISER, LS. AT WILLIAM H. GORDON ASSOCIATES, (703)729-9009 FOR STAKEOUT PLAN.
23. THE PROPERTY FALLS WITHIN THE LDN - 60 - 1 MILE BUFFER AIRPORT OVERLAY.
24. THE DATUM FOR ALL EXISTING AND PROPOSED ELEVATIONS IS N.G.V.D. 1929.

BMP CALCULATIONS

BMP SITE SERVED CALCULATIONS

PROJECT AREA = 71.8 AC
SITE AREA DRAINING TO FACILITY = 61.8 AC
PERCENT OF SITE SERVED = 86%

Pond A
BMP STORAGE REQUIRED

Drainage Area, DA = 13.8 Acres
Weighted C-Value = 0.75

DRY BMP STORAGE REQUIRED, V_{req} = ((DA in Sq Ft) (C-Value) (1 IN) (1FT/12 IN))
V_{req} = 37,571 CF = 0.86 AC-FT
STORAGE PROVIDED, $V_{provided}$ = 0.96 AC-FT (@ Elevation 325.50)

FOREBAY STORAGE
Per Virginia SWM Handbook: Section 3.04
Drainage Area = 8.0 Acres
C-Value = 0.85
Resulting Impervious Area = 6.80 Acres
10-Yr Discharge = 49.44 CFS (Tc = 5 Min)

FOREBAY STORAGE REQUIRED, S_{req} = ((Impervious Area in Sq Ft)(0.25 IN)(1 Ft/12 IN))
S_{req} = 6171 CF
STORAGE PROVIDED, $S_{provided}$ = 6354 CF

BMP OUTLET CALCULATIONS
(USE 30 HOUR DRAWDOWN TIME)

USE BMP ELEVATION, H_{BMP} = 325.50 2 Ac-Ft
INVERT OF OUTLET PIPE, H_{INV} = 318.00 Ft
$H_{Avg} = (H_{BMP}-H_{INV})/2$ = 3.75 Ft

$Q_{Avg} = V_{Provided}$ CF/ 30 HR (3600 S/HR) = 0.39 CFS

MAXIMUM AREA OF ORIFICE (A) = $Q_{Avg} / 0.6\ (2gH_{Avg})^{0.5}$
A = 0.04 SQ FT

MAXIMUM DIAMETER OF ORIFICE (d) = 0.23 FT
MAXIMUM DIAMETER OF ORIFICE (d) = 2.76 INCHES

USE 2 3/4 Inch DIAMETER ORIFICE, AT INVERT 318.00

Pond B
BMP STORAGE REQUIRED

Drainage Area, DA = 48.0 Acres
Weighted C-Value 0.64

WET BMP STORAGE REQUIRED, V_{req} = ((DA in Sq Ft) (C-Value) (1 IN) (1FT/12 IN))
V_{req} = 111,514 CF = 2.56 AC-FT
STORAGE PROVIDED, $V_{provided}$ = 3.70 AC-FT

NOTES
BMP storage volume is based on the FSM criteria in effect when the facilities were originally approved, excepted as noted. The drawndown time for Pond A was increased from 24 to 30-hours.

Pond A-Forebay (Elevation-Storage)

Elevation	Depth	Area		Ave Area	Storage	Total Storage	Total Storage
(Ft)	(Ft)	(Ac)	(Sq Ft)	(Sq Ft)	(Cu Ft)	(Cu Ft)	(Ac-Ft)
321.00	0.00	0.0000	0	0	0	0	0
322.00	1.00	0.0137	595	298	298	298	0.01
324.00	2.00	0.0325	1,416	1,006	2,011	2,309	0.05
326.00	2.00	0.0604	2,629	2,023	4,045	6,354	0.15

Pond B (Elevation-Storage) Wet Storage

Elevation	Depth	Area		Ave Area	Storage	Total Storage	Total Storage
(Ft)	(Ft)	(Ac)	(Sq Ft)	(Sq Ft)	(Cu Ft)	(Cu Ft)	(Ac-Ft)
316.90	0.00	0.0000	0	0	0	0	0
317.00	0.10	0.0028	122	61	6	6	0.00
318.00	1.00	0.2034	8,861	4,492	4,492	4,498	0.10
319.00	1.00	0.5903	25,712	17,287	17,287	21,784	0.50
320.00	1.00	0.9398	40,928	33,320	33,320	55,104	1.27
321.00	1.00	1.1875	51,729	46,329	46,329	101,433	2.33
322.00	1.00	1.4381	62,645	57,187	57,187	158,620	3.64

SUMMARY OF DISCHARGES

POND A

Pre-Developed Conditions

Basin	Area	C-Value	T_c	I_2	I_{10}	Q_2	Q_{10}
	(acres)		(min)		(in/hr)	(cfs)	(cfs)
A	15.00	0.30	12	4.20	5.60	18.9	25.2

Ultimate Conditions (2- and 10-Year Storms)

Basin	Area	C-Value	T_c	I_2	I_{10}	Q_2	Q_{10}
	(acres)		(min)		(in/hr)	(cfs)	(cfs)
A (Pond Outflow)	13.80	0.75	With Detention			12.60	20.00
A (Bypass)	1.80	0.30	5	5.75	7.27	3.1	3.9
A (SITE)	****Peak Pond Outflow + Peak Bypass Flow****					15.7	23.9

Ultimate Conditions (100-Year Storm)

Basin	Area	C-Value	T_c	I_{100}	C_f	Q_{100}
	(acres)		(min)	(in/hr)		
A	13.80	0.75	5	9.84	1.25	127.3

POND B

Pre-Developed Conditions

Basin	Area	C-Value	T_c	I_2	I_{10}	Q_2	Q_{10}
	(acres)		(min)		(in/hr)	(cfs)	(cfs)
B	34.40	0.30	24	3.20	4.30	33.0	44.4

Ultimate Conditions (2- and 10-Year Storms)

Basin	Area	C-Value	T_c	I_2	I_{10}	Q_2	Q_{10}
	(acres)		(min)		(in/hr)	(cfs)	(cfs)
B (Pond Outflow)	48.00	0.64	With Detention			30.10	41.80
B (Bypass)	1.00	0.30	5	5.75	7.27	1.7	2.2
B (SITE)	****Peak Pond Outflow + Peak Bypass Flow****					31.8	44.0

Ultimate Conditions (100-Year Storm)

Basin	Area	C-Value	T_c	I_{100}	C_f	Q_{100}
	(acres)		(min)	(in/hr)		
B	48.00	0.64	10	8.10	1.25	311.0

NARRATIVE

Background

In an effort to meet the stormwater management (SWM) and BMP requirements for the Loudoun County Government Center, two SWM facilities were to have been built in approximately 1990. The original plans that proposed the facilities are not available. Initially, the facilities were to act as erosion and sediment control basins to provide erosion and sediment control during the construction of the site. Upon completion of the construction, the facilities were to be converted to permanent SWM/BMP facilities. The conversion from temporary erosion and sediment control basins to permanent SWM/BMP facilities never took place.

Purpose of Plan

The purpose of this plan is to complete the stormwater management SWM/BMP infrastructure for this site. This is to be accomplished through completing the conversion from temporary erosion and sediment control basins to permanent SWM/BMP facilities as the originally approved plans had intended.

Design Criteria

A pre-submission meeting was held on August 19, 2003 between William H. Gordon Associates, Inc. and Loudoun County Building & Development. During that meeting, it was established that this project would not have to be upgraded to the current Facilities Standards Manual (FSM), per FSM 1.1000. The FSM that was in force when the two facilities were built will be the basis of the design standards. This is the 1990 FSM. During the meeting, it was agreed that the stormwater management and BMP criteria would be held to the 1990 FSM standards. Those standards specifically established as the "accepted BMP reference manual", the publication entitled "Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs, prepared by the Metropolitan Washington Council of Governments". Since the 1990 FSM did not specifically address the design criteria for "wet ponds", this publication was used to establish the storage requirements of the permanent pool for Pond B, based on the County's desire to have the existing wet pond remain. It was also agreed that the embankment, riser and spillways would be designed to meet the current standards.

Topography

The topographic map shown on Sheet 3 was taken Loudoun County Geographic Information System Tile Numbers 191 and 192. This information pre-dates the development within the site.

The topographic maps shown on Sheets 4 and 5 were supplied by the County and were supplemented with a field survey in the immediate area of the two ponds. The interval contour is 2'. The aerial survey did not cover the existing Parking Lot Expansion of the Vehicle Maintenance Center. In this area no contours are shown, only geometric features such as curb and fences are presented. Also, the maps were updated to reflect the geometric features and contours of the Adult Detention Center currently planned for the site. In addition, the planned Public Safety Building geometric features are shown, without contours. Offsite topography shown was taken Loudoun County Geographic Information System Tile Numbers 191 and 192.

Hydrology/Hydraulics

Since the original plans that proposed the facilities are not available, the hydrologic computations that would have been required with the original plan have been re-created. The Rational Method was used to develop the hydrology. Pre-Developed Conditions drainage areas, time of concentration (Tc) and c-values were developed using County topographic maps. 2- and 10- Year Pre-Developed discharges were determined.

Ultimate Conditions drainage areas, Tc's and c-values were developed using 2' contour interval aerial topographic maps. The two facilities, Pond A and Pond B have been design to provide 2- and 10-Year stormwater management, in addition to BMP storage.

Pond A is an extended detention dry pond with enough storage to control/detain the first flush of all storms which equates to the equivalent of runoff volume produced by a one inch storm. Pond B is a wet pond. This facility exceeds the requirements, based on "Sizing Rule 2" and the associated removal efficiency based on the County's "accepted BMP reference manual".

Both facilities have separate Emergency Spillways that control the 100-year storm and provide at least 1' of free board. The Emergency Spillways have been design assuming the Principal Spillways are 100% blocked.

OUTFALL NARRATIVE

Stormwater from the site is collected by inlets and is conveyed via pipes and open channels to two SWM/BMP ponds. These ponds are identified as Pond A and Pond B and are shown on Sheets 4 and 5. Ponds A & B provide detention for the 2- and 10-year storms, releasing Ultimate Conditions discharges from the site below Pre-Development discharge rates. The discharges from both ponds drain to the Minor Floodplain of a tributary to Goose Creek.

REVISIONS

SURVEY N/A
DESIGN SCP
DRAWN SCP
CHECKED JEM

ENGINEERS - SURVEYORS - LAND PLANNERS - LANDSCAPE ARCHITECTS
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DATE 2/2004
SCALE HORZ: N/A VERT: N/A
SEAL

COMMONWEALTH OF VIRGINIA
JOHN E. MORRIS
No. 7964
PROFESSIONAL ENGINEER
12/09/04

GENERAL NOTES/NARRATIVES/BMP COMPUTATIONS

FINAL CONVERSION OF EXISTING SWM FACILITIES
LOUDOUN COUNY GOVERNMENT CENTER
CATOCTIN ELECTION DISTRICT
LOUDOUN COUNTY, VIRGINIA

PROJECT
JOB 2000-0501
CADD 02Plt-nts.DWG
SHEET 2 OF 10